

Form PTO 1449 (Modified)		U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		ATTY. DOCKET NO. 8733.20101		SERIAL NO. New Application	
LIST OF REFERENCES CITED BY APPLICANT (Use Several Sheets if Necessary)				APPLICANT Mi Sook NAM et al.		GROUP TBA 1172	
				FILING DATE Herewith			

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 09/534723
 03/24/00

U.S. PATENT DOCUMENTS							
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE IF APPROPRIATE
8H	AA	4,974,941	12/04/90	Gibbons et al	350	349	
8H	AB	5,032,009	07/16/91	Gibbons et al	350	341	
8H	AC	5,073,294	12/17/91	Shannon et al	252	299.01	
8H	AD	5,296,321	03/22/94	Kawanishi et al	430	20	
8H	AE	5,389,698	02/14/95	Chigrinov et al	522	2	

FOREIGN PATENT DOCUMENTS					
		DOCUMENT NUMBER	DATE	COUNTRY	TRANSLATION YES NO
8H (ABS)	AF	0 525 473	02/03/93	EPO	ABSTRACT
8H (ABS)	AG	0 525 478	02/03/93	EPO	ABSTRACT
8H (ABS)	AH	0 611 786	07/23/96	EPO	ABSTRACT
8H	AI	0 708 354	04/24/96	EPO	YES
8H	AJ	0 742 471	11/13/96	EPO	YES
8H	AK	0 750 212	12/27/96	EPO	YES
8H (ABS)	AL	44 20 585	12/14/95	GERMANY	NO
SH (US EQUIV) US 4963448	AM	64-60833	03/07/89	JAPAN	NO
8H (ABS)	AN	1-251344	10/06/89	JAPAN	ABSTRACT
8H (ABS)	AO	1-251345	10/06/89	JAPAN	ABSTRACT

OTHER REFERENCES (Including Author, Title, Date, Pertinent Pages, Etc.)		
8H	AP	W. Gibbons, et al., <i>Surface-mediated alignment of nematic liquid crystals with polarized laser light</i> , Letters to Nature, Vol. 351, 05/02/1991, pp. 49 & 50.
8H	AQ	Martin Schadt, <i>Surface-Induced Parallel Alignment of Liquid Crystals by Linearly Polymerized Photopolymers</i> , Jpn. J. Appl. Phys. Vol. 31 (1992), Part 1, No. 7, July 1992.
8H	AR	Yasufumi Iimura, et al., <i>Alignment Control of a Liquid Crystal on a Photosensitive Polyvinylalcohol Film</i> , Jpn. J. Appl. Phys. Vol. 32 (1993), Part 2, No. 1A/B, 01/15/93.

EXAMINER 800-F-16	DATE CONSIDERED 07/25/02
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Form PTO 1449 (Modified)		U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		ATTY. DOCKET NO. 8733.20101		SERIAL NO. New Application 09/534,723	
LIST OF REFERENCES CITED BY APPLICANT (Use Several Sheets if Necessary)				APPLICANT Mi Sook NAM et al.			
				FILING DATE Herewith		GROUP TBA 1992	
U.S. PATENT DOCUMENTS							
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLAS S	SUB CLASS	FILING DATE IF APPROPRIATE
SH	AS	5,447,662	09/05/95	Herr et al	252	582	
SH	AT	5,453,862	09/26/95	Toko et al	359	76	
SH	AU	5,464,669	11/07/95	Kang et al	428	1	
SH	AV	5,479,282	12/26/95	Toko et al	359	75	
SH	AW	5,538,823	07/23/96	Park et al	430	20	
FOREIGN PATENT DOCUMENTS							
		DOCUMENT NUMBER	DATE	COUNTRY	TRANSLATION YES NO		
SH (ABS)	AX	2-55330	02/23/90	JAPAN	ABSTRACT		
SH (ABS)	AY	2-298917	12/11/90	JAPAN	ABSTRACT		
SH (ABS)	AZ	3-36527	02/18/91	JAPAN	NO		
SH (ABS)	BA	04-7520	01/10/92	JAPAN	ABSTRACT		
SH (ABS)	BB	4-284421	10/09/92	JAPAN	ABSTRACT		
SH (ABS)	BC	4-350822	12/04/92	JAPAN	ABSTRACT		
SH (ABS)	BD	5-34699	02/12/93	JAPAN	ABSTRACT		
SH (ABS)	BE	5-53513	03/05/93	JAPAN	ABSTRACT		
SH (ABS)	BF	5-232473	09/10/93	JAPAN	NO		
SH (ABS)	BG	7-261185	10/13/95	JAPAN	ABSTRACT		
OTHER REFERENCES (Including Author, Title, Date, Pertinent Pages, Etc.)							
SH	BH	KUNIHITO ICHIMURA, PHOTOCONTROL OF LIQUID CRYSTAL ALIGNMENT, 1993 Kunihito Ichimura, Photocontrol of Liquid Crystal Alignment, 1993.					
SH	BI	T. Marushii, et al., Photosensitive Orientants for Liquid Crystal Alignment, Mol. Mat. 1993, Vol. 3, pp. 161-168.					
SH	BJ	Y. Toko, et al., TN-LCDs Fabricated by Non-Rubbing Showing Wide and Homogeneous Viewing Angular Characteristics and Excellent Voltage Holding Ratio, SID 93 Digest, pp. 622-625.					
EXAMINER Soc - F - H.					DATE CONSIDERED 07/25/02		
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LIST OF REFERENCES CITED BY APPLICANT (Use Several Sheets if Necessary)				APPLICANT Mi Sook NAM et al.			
				FILING DATE Herewith		GROUP TBA 1772	
U.S. PATENT DOCUMENTS							
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE IF APPROPRIATE
PA	BK	5,539,074	07/23/96	Herr et al	526	326	
PA	BL	5,576,862	11/19/96	Sugiyama et al	359	75	
PA	BM	5,578,351	11/26/96	Shashidhar et al	428	1	
PA	BN	5,602,661	02/11/97	Schadt et al	349	124	
PA	BO	5,604,615	08/15/97	Iwagoe et al	349	124	
FOREIGN PATENT DOCUMENTS							
		DOCUMENT NUMBER	DATE	COUNTRY	TRANSLATION YES NO		
PA (ABS)	BR	7-56173	03/03/95	JAPAN	ABSTRACT		
PA (ABS)	BQ	8-334790	12/17/96	JAPAN	ABSTRACT		
PA (ABS)	BR	9-211468	08/15/97	JAPAN	ABSTRACT		
PA	BS	96/22561	07/25/96	PCT	YES		
PA	BT	2 281 977	03/22/95	UK	YES		
PA	BU	2 286 893	08/30/95	UK	YES		
PA	BV	2 310 048	08/13/97	UK	YES		
OTHER REFERENCES (Including Author, Title, Date, Pertinent Pages, Etc.)							
PA	BW	P. Shannon, et al., <i>Patterned optical properties in photopolymerized surface-aligned liquid-crystal films</i> , Letters to Nature, Vol. 368, 04/07/94, pp. 532 & 533.					
PA	BX	Y. Iimura, et al., <i>Invited Address: Electro-Optic Characteristics of Amorphous and Super-Multidomain TN-LCDs Prepared by a Non-Rubbing Method</i> , SID 94 Digest, pp. 915-918.					
PA	BY	M. Schadt, et al., <i>Photo-Generation of Linearly Polymerized Liquid Crystal Aligning Layers Comprising Novel, Integrated Optically Patterned Retarders and Color Filters</i> , Jpn. J. Appl. Phys. Vol. 34 (1995), pp. 3240-3249, Part 1, No. 6A, June 1995.					
EXAMINER					DATE CONSIDERED		
SOU - F - H.					07/25/02		
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				FILING DATE Herewith		GROUP TBA 1702	
U.S. PATENT DOCUMENTS							
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE IF APPROPRIATE
824	BZ	5,657,105	08/12/97	McCartney	349	157	
824	CA	5,712,696	01/27/98	Toko et al	349	123	
824	CB	5,764,326	06/16/98	Hasegawa et al	349	124	
824	CC	5,767,994	06/16/98	Kang et al	359	72	
824	CD	5,784,139	07/21/98	Chigrinov et al	349	117	
FOREIGN PATENT DOCUMENTS							
		DOCUMENT NUMBER	DATE	COUNTRY	TRANSLATION YES NO		
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824	CE	A. Lien, et al., <i>UV modification of surface pretilt of alignment layers of multidomain liquid crystal displays</i> , Appl. Phys. Lett. 62 (21), 11/20/95, pp. 3108-3111.					
824	CF	M. Hasegawa, <i>Nematic Homogeneous Photo Alignment by Polyimide Exposure to Linearly Polarized UV</i> , Journal of Photopolymer Science and Technology, Vol. 8, No. 2, 1995, pp. 241-248.					
824	CG	M. Schadt, <i>Investigation of the Mechanism of the Surface-Induced Alignment of Liquid Crystals by Linearly Polymerized Photopolymers</i> , SID 95 Digest, pp. 528-531					
EXAMINER 824 - F - H.					DATE CONSIDERED 07/25/02		
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LIST OF REFERENCES CITED BY APPLICANT (Use Several Sheets if Necessary)				APPLICANT Mi Sook NAM et al.			
				FILING DATE Herewith		GROUP TBA 1772	
U.S. PATENT DOCUMENTS							
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE IF APPROPRIATE
PA	CP	5,909,265	06/01/99	Kim et al	349	129	
MA	CQ	5,982,466	11/09/99	Choi et al	349	124	
FOREIGN PATENT DOCUMENTS							
		DOCUMENT NUMBER	DATE	COUNTRY		TRANSLATION YES NO	
OTHER REFERENCES (Including Author, Title, Date, Pertinent Pages, Etc.)							
PA	CR	A. Lien, <i>UV-Type Two-Domain Wide Viewing Angle TFT/LCD Panels</i> , Asia Display '95, pp. 593-596.					
PA	CS	T. Yamamoto, <i>Liquid-Crystal Alignment by Slantwise Irradiation of Non-Polarized UV Light on a Polyimide Layer</i> , SID 96 Digest, pp. 642-645.					
PA	CT	M. Schadt, et al., <i>Optical patterning of multi-domain liquid-crystal displays with wide viewing angles</i> , Letters to Nature, Vol. 381, 05/16/96					
PA	CU	J. Chen, <i>Model of liquid crystal alignment by exposure to linearly polarized ultraviolet light</i> , Physical Review E, Vol. 54, No. 2, August 1996, pp. 1599-1603					
PA	CV	H. Soh, et al., <i>The Realization of Wide Viewing Angle TFT-LCDs using Photo-Alignment Method</i> , Euro Display '96, pp. 579-582.					
PA	CW	J. Chen, <i>Mechanism of Liquid-Crystal Alignment by Polyimide Exposure to Linearly Polarized UV Light</i> , SID 96 Digest, pp. 634-637					
PA	CX	K. Lee, et al., <i>Late-News Poster: Mechanism of UV Modification of LC Pretilt Angle and Its Application to Two-Domain TN-LCDs</i> , SID 96 Digest, pp. 638-641.					
PA	CY	J. Kim, et al., <i>Late-News Poster: Photo-Alignment of Liquid Crystals Using a New Photopolymer</i> , SID 96 Digest, pp. 646-649.					
PA	CZ	Y. Saitoh, et al., <i>Stability of UV-Type Two-Domain Wide-Viewing-Angle TFT-LCD Panels</i> , SID 96 Digest, pp. 662-665					
PA	DA	D. Seo, et al., <i>Invited Address: Surface Alignment of Liquid Crystals in LCDs</i> , SID 93 Digest, pp. 954-956.					
PA	DB	Y. Iimura, <i>Invited Paper: Prospects of the Photo-Alignment Technique for LCD fabrication</i> , SID 97 Digest, pp. 311-314.					
EXAMINER Sou-Fu H.					DATE CONSIDERED 07/25/02		
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LIST OF REFERENCES CITED BY APPLICANT (Use Several Sheets if Necessary)				APPLICANT Mi Sook NAM et al.			
				FILING DATE Herewith		GROUP ISA 1772	
U.S. PATENT DOCUMENTS							
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE IF APPROPRIATE
FOREIGN PATENT DOCUMENTS							
		DOCUMENT NUMBER	DATE	COUNTRY	TRANSLATION YES NO		
OTHER REFERENCES (Including Author, Title, Date, Pertinent Pages, Etc.)							
MA	DC	R. Shashidhar, et al., <i>A New Non-Rubbing Technique for Liquid-Crystal Alignment</i> , SID 97 Digest, pp. 315-318.					
MA	DD	M. Schadt, et al., <i>Invited Paper: Optical Patterning of Multidomain LCDs</i> , SID 97 Digest, pp. 397-400.					
MA	DE	K. Han, et al., <i>A Study on the Photo-Alignment of the Polymer-Containing Cinnamate Group Using a New Single UV-Exposure Method</i> , SID 97 Digest, pp. 707-710.					
MA	DF	F. Yamada, et al., <i>Late-News Poster: A New Photo-Alignment Scheme for LC-Cell Pretilt Control</i> , SID 97 Digest, pp. 715- 718.					
MA	DG	M. Nam, et al., <i>Wide-Viewing-Angle TFT-LCD with Photo-Aligned Four-Domain TN Mode</i> , SID 97 Digest, pp. 933-936.					
EXAMINER Sou-Fu H.				DATE CONSIDERED 07/25/02			
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Form PTO 1449

U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICELIST OF REFERENCES CITED BY
APPLICANT

(Use Several Sheets if Necessary)

Date: December 1, 2000Attorney Docket No.:
8733.229.00Application No.:
09/534,723Applicant:
Mi Sook NAM et al.Filing Date:
March 24, 2000Group:
~~Unknown~~ 1112RECEIVED
JUL 25 2001
TC 2800 MAIL ROOM

U.S. PATENT DOCUMENTS

EXAMINER INITIAL*		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	AA						
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		Document No.	Date	Country	TRANSLATION	
					YES	NO
PA	AK	0 690 334	01/1996	EPO		✓
	AL					
	AM					
	AN					
	AO					

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PA	AP	UK Search Report and Examination, pp. 1-4, July, 2000
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	AR	

Examiner Signature

Su-F-1h

Date Considered:

07/22/02

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<div>Substitute for form 1449A/PTO</div> <div>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</div> <div>(use as many sheets as necessary)</div>				Complete if Known	
				Application Number	09/534,723
				Filing Date	March 24, 2000
				First Named Inventor	Mi S. Nam
				Art Unit	1772
				Examiner Name	S. Hon
				Attorney Docket Number	8733.229.00-US
Sheet	1	of	1		

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¹ Applicant's unique citation designation number (optional). ² See attached Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the application number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶ Applicant is to place a check mark here if English language Translation is attached.

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Examiner Signature	<i>Sm - F - H.</i>	Date Considered	07/22/02
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